

NGEN STAR USER MANUAL

A HYBRID SYSTEM INCLUDING A SOLAR POWER PLANT AND AN
ENERGY STORAGE SYSTEM



1	PACKAGE CONTENTS	1
2	INSTALLATION OF SOLAR PANELS	1
2.1	Site Selection	1
2.2	Installation of Solar Panels	1
3	INSTALLATION OF THE ENERGY STORAGE SYSTEM	1
3.1	Site Selection	1
3.2	Mounting and Connection of the Energy Storage System	1
4	INSTALLATION OF THE INVERTER	2
4.1	Site Selection	2
4.2	Mounting and Connection of the Inverter	2
5	OPERATING THE SYSTEM	2
5.1	Using Stored Energy	2
5.2	Monitoring the System Performance	2
6	SAFETY INSTRUCTIONS	2
6.1	Working with Electricity	2
6.2	Protection Against Weather Conditions	2
6.3	System Overload	2
7	TROUBLESHOOTING	3
7.1	Problems with data tracking on NGEN Energy application	3
7.2	Problems with NGEN Star system	4
8	NGEN MOBILE APPLICATION FOR MONITORING AND MANAGEMENT	5
8.1	Overview	5
8.2	Installing the Application	5
8.3	Registration and Login	5
8.4	Using the Application	5
8.5	Support and Application Updates	5
9	INTEGRATION WITH OTHER DEVICES AND SYSTEMS	6
9.1	Smart Homes	6
9.2	Electric Vehicles	6
10	ENERGY INDEPENDENCE AND SELF-SUFFICIENCY	6
10.1	Planning for Energy Independence“	6
10.2	Self-sufficiency and Sustainability	6
11	SYSTEM PROTECTION	6
11.1	Protection against Theft and Vandalism	6
11.2	Protection against Weather Damage	6
12	SYSTEM EXPANSION	7

12.1	Adding Additional Solar Panels	7
12.2	Adding Additional Energy Storage Units	7
13	BACKUP POWER WITH HYBRID SYSTEM.....	7
13.1	Backup Power Mode	7
13.2	Setting up Backup Power.....	7
13.3	Monitoring Backup Power.....	7
13.4	Restoring Grid Connection	7
14	NGEN STAR SYSTEM SHUTDOWN	8
14.1	Emergency shutdown with Safety switch	8
14.2	Shutting down the NGEN Star hybrid system	9
15	FUNCTION FOR HEAT PUMPS AND UTILIZATION OF SMART GRID (SG)	10
15.1	Smart Grid and Heat Pumps.....	10
15.2	Setting up Heat Pumps.....	11
15.3	Energy Consumption Adjustment	12
15.4	Lowering Electricity Prices with the NGEN Platform.....	12
15.5	Monitoring Heat Pump Operations.....	12
16	RECYCLING AND DISPOSAL.....	12
16.1	Recycling Old Components.....	12
16.2	Battery Disposal.....	12
17	MAINTENANCE AND CLEANING	12
17.1	Regular Maintenance	12
17.2	Cleaning the Solar Panels	13
17.3	Checking and Replacing Batteries	13
18	ADDITIONAL INFORMATION AND RESOURCES	13
19	FIRE SAFETY	13
19.1	Fire Prevention	13
19.2	Action in Case of Fire.....	13
20	WARRANTY AND SUPPORT.....	14
20.1	Contacting the Manufacturer (NGEN).....	14

INTRODUCTION

NGEN Star is a hybrid system that includes a solar power plant and an energy storage system. It is designed for efficient and environmentally friendly acquisition and storage of electrical energy. This device is ideal for use in residential, commercial, and industrial buildings.

1 PACKAGE CONTENTS

- Solar panels,
- NGEN Star energy storage system,
- Hybrid inverter,
- Mounting materials,
- »Smart box« safety unit,
- User manual and installation guide.

2 INSTALLATION OF SOLAR PANELS

2.1 Site Selection

Choose a location that will provide optimal exposure to sun without shading, ideally south-facing.

2.2 Installation of Solar Panels

Mount the solar panels on the roof, ground, or another suitable surface using the provided mounting materials. Make sure that the panels are securely attached and correctly angled to receive the sun's rays for maximum efficiency.

3 INSTALLATION OF THE ENERGY STORAGE SYSTEM

3.1 Site Selection

Choose a dry, cool, and well-ventilated location that is protected from direct sunlight for installing the energy storage system.

3.2 Mounting and Connection of the Energy Storage System

Mount the storage system on the floor or wall according to the manufacturer's instructions. Connect the energy storage system to the inverter and solar panels using the provided cables.

4 INSTALLATION OF THE INVERTER

4.1 Site Selection

For the inverter, choose a dry, cool, and well-ventilated location that is protected from direct sunlight and as close as possible to the energy storage system and solar panels.

4.2 Mounting and Connection of the Inverter

Mount the inverter on the wall or place it on the floor according to the manufacturer's instructions. Connect the inverter to the solar panels, energy storage system, and electrical grid.

5 OPERATING THE SYSTEM

5.1 Using Stored Energy

The system will automatically draw on stored energy when additional energy is needed or in the event of a power outage.

5.2 Monitoring the System Performance

NGEN Star offers a mobile user interface for monitoring system performance in real-time. Connect to the interface via a smartphone, tablet, or computer to review production data, energy consumption, battery status, and any issues that may arise.

6 SAFETY INSTRUCTIONS

6.1 Working with Electricity

When working with electrical energy, always observe safety precautions. Before starting the installation and maintenance of the system, ensure that the device is turned off and consult with a qualified electrician. In case of emergency shutdown, the device has a safety switch (marked as "Safety switch") on the "Smart Box" unit. By pressing the switch, all units, including the backup power provided by the hybrid system with the electric energy storage, are turned off.

6.2 Protection Against Weather Conditions

Solar panels, energy storage and inverter must be installed in such a way as to prevent the ingress of water, snow, ice, and other hazards. In addition, the system must be protected against lightning strikes.

6.3 System Overload

Prevent system overload by monitoring energy consumption. The system is designed to operate with a certain capacity, so do not add additional devices without consulting an expert.

7 TROUBLESHOOTING

7.1 Problems with data tracking on NGEN Energy application



Image 1: Problems with communication

If a communication issue occurs, as shown in picture 1, follow these steps to resolve the problem:

1. Turn off and then after 10 seconds, turn on again the device providing your internet connection. Wait for your internet connection to be established and continue with the process (If your internet is not working, contact your internet service provider).
2. Open your Smart Box and press and hold the RESET NGEN FLEX button for 5 seconds, as indicated additionally in picture 2. After 5 minutes, check the status in the application.



Image 2: RESET NGEN FLEX button

3. If you still do not see the current data of your device or the communication has not been established, contact an authorized service technician or our technical support using the application or at: 0804488 or support@ngen.si.

7.2 Problems with NGEN Star system

In case your NGEN Star system is not functioning or has experienced a failure, press and hold the button on the inverter until the power-off option appears. Press the button again to turn off the inverter. If you have an integrated transfer switch and are actively using the EPS or Backup function, switch the switch to position [2], where the grid powers your appliances instead of the inverter (If unsure, refer to the EPS power supply instructions provided with each cabinet). The mentioned procedure is shown below.



Image 3: Inverter stop_1.1

5s



Image 4: Inverter stop_1.2

1s



Image 5: Inverter stop_1.3

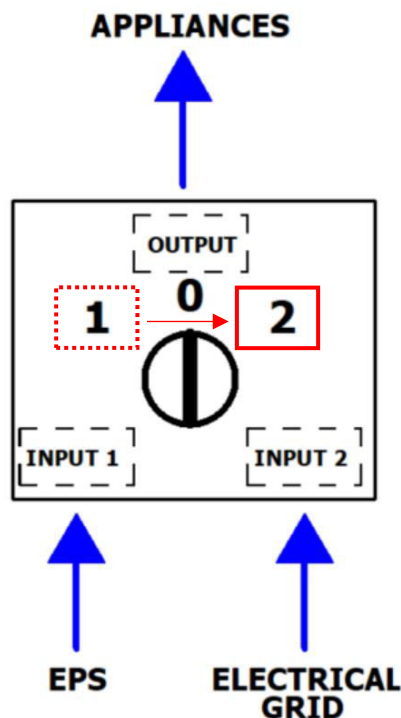


Image 6: Transfer switch

For further assistance and troubleshooting, contact the authorized service provider for your system or our technical support using the application or at: 0804488 or support@ngen.si.

8 NGEN MOBILE APPLICATION FOR MONITORING AND MANAGEMENT

8.1 Overview

NGEN has developed a mobile application called NGEN Energy that enables users to monitor and manage their NGEN Star system. The app allows users to easily monitor energy production and consumption, check battery status, manage system settings, and receive notifications of potential issues.



Image 7: NGEN Energy application

8.2 Installing the Application

You can download and install the NGEN Energy mobile application from the Google Play store (for Android devices) or the App Store (for iOS devices). Type "NGEN Energy" in the app store and follow the installation instructions.

8.3 Registration and Login

Upon first use of the application, you must register with a valid email address and password. After registration, you will receive an email with a link to confirm your account. Follow the instructions in the email to complete the registration process.

8.4 Using the Application

With the NGEN Energy mobile application, you can monitor and manage your NGEN Star system in the following ways:

- Energy production overview: monitor real-time energy production from the solar panels.
- Energy consumption overview: monitor energy consumption in your building.
- Battery status: check the current charge level of the energy storage system.
- System settings: adjust system settings, such as battery charge and discharge timers and operation in self-sufficiency mode.
- Notifications: receive notifications of any potential system issues or maintenance alerts.

Colour Indicators of Inverter Status:

- Grey: Normal system operation.
- Green: Inverter is operating in OffGrid mode.
- Orange: Inverter is in checking mode.
- Red: Inverter has a fault.

8.5 Support and Application Updates

To receive technical support for the NGEN Energy mobile application, please contact us using the application. If that is not possible, contact us at support@ngen.si. Regularly check for updates to the application in the app store to ensure you have the latest features and improvements.

9 INTEGRATION WITH OTHER DEVICES AND SYSTEMS

9.1 Smart Homes

The NGEN Star system is compatible with most smart home solutions. Integrating with a smart home allows for energy consumption automation and system optimization. To connect to the NGEN Star system, follow the instructions provided by your smart home device manufacturer.

9.2 Electric Vehicles

If you own an electric vehicle, you can use the NGEN Star system to charge your vehicle with energy generated from solar panels. Connect your electric vehicle charging station to the NGEN Star system, set charging schedules in the mobile app, and enjoy free and clean energy for your vehicle.

10 ENERGY INDEPENDENCE AND SELF-SUFFICIENCY

10.1 Planning for Energy Independence“

The NGEN Star system allows you to achieve energy independence and reduce or even eliminate dependence on grid electricity. Take steps towards energy independence by monitoring energy consumption, optimizing system operation, and adding additional solar panels or storage if necessary.

10.2 Self-sufficiency and Sustainability

Using the NGEN Star system not only saves you money on electricity bills, but also contributes to a sustainable and green lifestyle. Solar energy is a renewable source that does not produce greenhouse gas emissions and does not deplete valuable natural resources.

11 SYSTEM PROTECTION

11.1 Protection against Theft and Vandalism

For additional protection for your NGEN Star system against theft or vandalism, consider purchasing insurance that covers such events. Contact your insurance representative for more information on insurance options.

11.2 Protection against Weather Damage

In addition to protecting your system from weather conditions through proper installation and maintenance, you can also choose insurance that covers potential damages due to natural disasters such as storms, hail, or floods. Contact your insurance company to determine whether your current policy covers your system, or if you need additional insurance.

12 SYSTEM EXPANSION

12.1 Adding Additional Solar Panels

If you want to increase the energy production capacity, you can add additional solar panels to the existing system. Before adding new panels, make sure your inverter can handle the additional load and consult an expert.

12.2 Adding Additional Energy Storage Units

If you want to increase the energy storage capacity, you can add additional energy storage units to the existing system. Before adding new storage units, make sure your inverter can handle the additional load and consult an expert.

13 BACKUP POWER WITH HYBRID SYSTEM

13.1 Backup Power Mode

The NGEN Star hybrid system provides backup power for your home or business in case of a power outage or unstable grid. In the event of a power outage, the system automatically switches to backup power mode, providing electricity to critical appliances using energy stored in the battery.

13.2 Setting up Backup Power

The NGEN Energy mobile app enables you to monitor the backup power mode. Please note that the capacity of the battery determines the number of devices you can power and for how long. To extend the backup power time, we recommend selecting essential appliances such as lighting, refrigerators, and water heaters, and limiting unnecessary energy consumption.

13.3 Monitoring Backup Power

The mobile app allows you to monitor the system's operation in backup power mode, including battery level and energy consumption. Use this data to adjust your energy consumption and ensure optimal system operation in emergency situations.

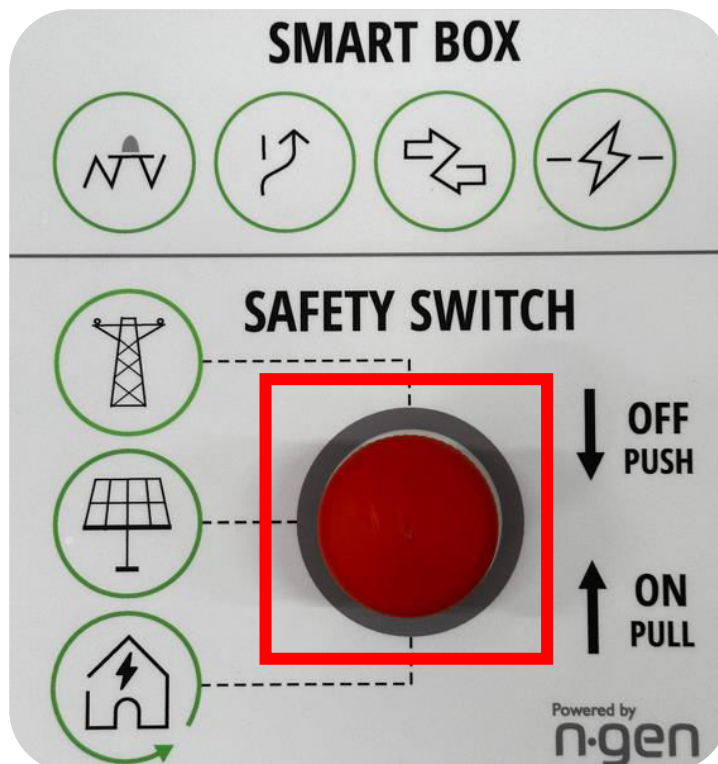
13.4 Restoring Grid Connection

Once the grid power is restored, the NGEN Star system automatically switches back to grid power mode and starts recharging the battery. Make sure the grid is stable before turning on any devices that were turned off during the power outage.

14 NGEN STAR SYSTEM SHUTDOWN

14.1 Emergency shutdown with Safety switch

The safety switch (Safety switch), located on the "Smart Box" unit, enables a quick and safe shutdown of all system components in emergencies or during maintenance. By pressing the switch, shown in image 7, a voltage-free state is ensured, preventing the risk of electric shock or other issues related to electrical energy.



Use it:



Image 8: Safety switch

- Before starting maintenance work that requires direct contact with the electrical components of the system,
- In case of a fire,
- When there is a battery leak,
- In all other hazardous situations that require an immediate shutdown of the system.

After pressing the switch, wait for a few seconds to ensure that the voltage in the system is completely discharged before starting to work on the components. After completing the work and before restarting the system, make sure that all components are properly installed, connected, and that there are no visible damages.

To restart the system, pull out the safety switch and wait for 5 minutes for the system to fully boot up. If you notice any issues or irregularities, contact NGEN technical support or an authorized service provider.

14.2 Shutting down the NGEN Star hybrid system

To shut down the NGEN Star hybrid system, follow these steps:

1. Turn off the inverter by pressing the button for 5 seconds, confirm the shutdown selection, and wait for the message "Switch off" to appear on the inverter screen. The process is illustrated in the images below.



Image 9: Inverter stop_1.4



Image 10: Inverter stop_1.5



Image 11: Inverter stop_1.6

2. Move the DC switch, located on the bottom of the inverter, from the ON position to the OFF position.



Image 12: Disabling solar DC power_1.1

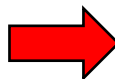


Image 13: Disabling solar DC power_1.2

3. Press the silver button located on the battery, shown in image 13.

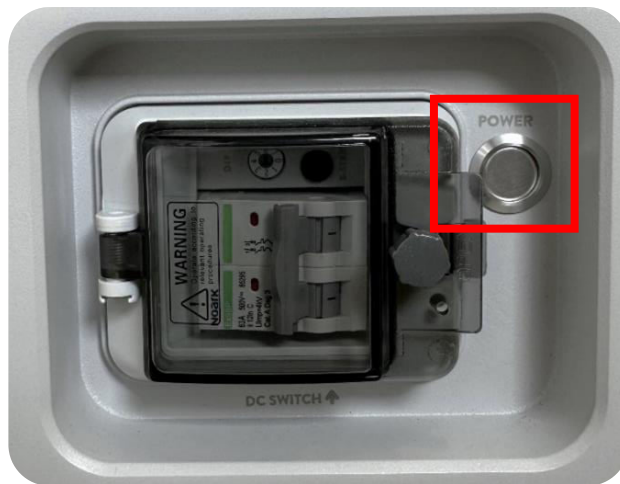


Image 14: Battery shutdown

4. Switch off the supply fuse labeled »OUTPUT 1 STAR H3«

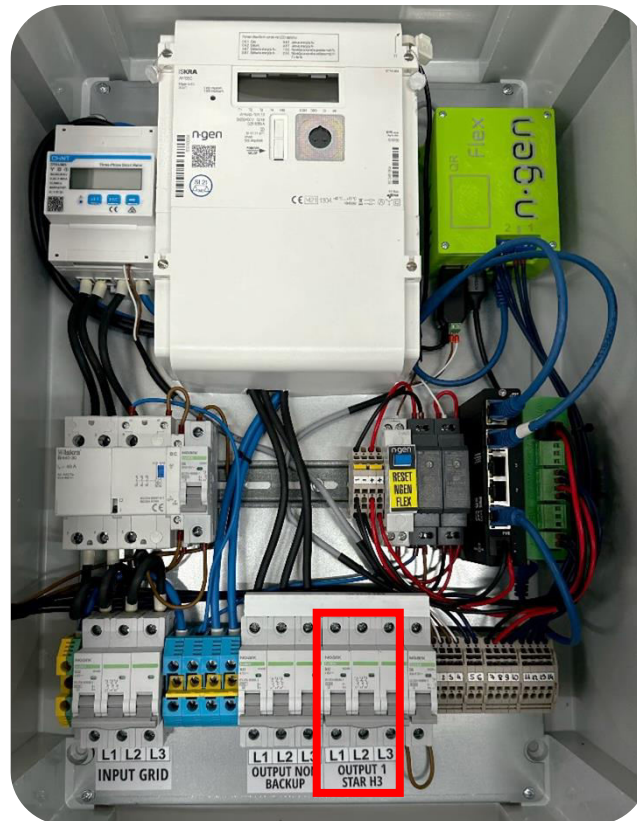


Image 15: Switching off the fuse STAR H3

If you notice any problems or irregularities, please contact NGEN technical support or an authorized service provider.

15 FUNCTION FOR HEAT PUMPS AND UTILIZATION OF SMART GRID (SG)

15.1 Smart Grid and Heat Pumps

The Smart Grid (SG) function enables efficient use of energy from the solar power plant and the NGEN Star energy storage system to heat the water in the heat pumps. This function allows optimal use of available energy, reduces energy consumption from the grid, and takes advantage of lower electricity prices when the NGEN platform is activated.

For connecting the contacts of the heat pump or smart appliances, there are 4 available free terminals, indicated in the red frame in image 15. Normally, these terminals are connected in pairs to the communicator, with each pair connected to its NO or normally open contact.



Image 16: Free contacts for smart appliances

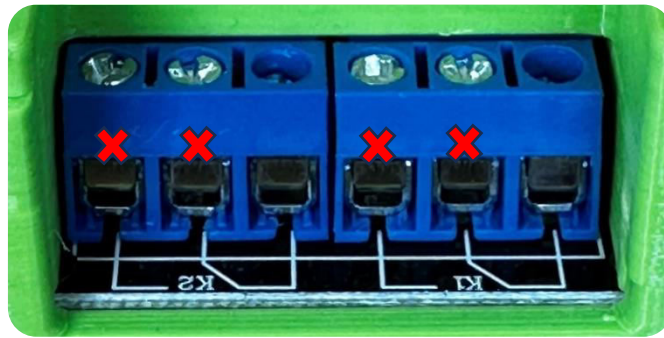


Image 17: Used contacts

15.2 Setting up Heat Pumps

The user can set the "ACTIVE" or "INACTIVE" function on the mobile application. Once the "ACTIVE" function is set, the heat pump automatically starts heating the water when sufficient energy is available from the solar power plant and battery or from the NGEN platform.

15.3 Energy Consumption Adjustment

By using this function, the heat pump adjusts to the available energy from the solar power plant and storage, reducing energy consumption from the grid. This allows the user to take advantage of renewable energy production and reduce electricity costs. When there is excess energy from the solar power plant and the "ACTIVE" function is set, the heat pump will automatically turn on. Instead of releasing excess energy into the grid, the heat pump will redirect the energy to heat water, thereby storing the energy in the form of heat. This energy consumption adjustment allows the user to better utilize the produced energy and reduce electricity costs.

15.4 Lowering Electricity Prices with the NGEN Platform

The NGEN platform enables users to monitor the current price of electricity on the market. When the current electricity price falls by more than 40 % below the user's valid price, the system will automatically activate the charging of the energy storage or turn on the heat pump if the "ACTIVE" function is set. By doing so, the heat pump utilizes cheaper grid electricity to heat water and reduces electricity costs for the user. At the same time, the energy storage will be charged, enabling optimal use of low electricity prices.

15.5 Monitoring Heat Pump Operations

The NGEN Energy mobile application allows monitoring of heat pump operations and energy consumption in real time. Users can use the application to monitor system efficiency, adjust heat pump settings, and respond to changes in energy availability.

16 RECYCLING AND DISPOSAL

16.1 Recycling Old Components

Once the life of the system's components expires, do not dispose of them with household waste. Solar panels, storage units, and inverters contain materials that can be recycled. For instructions on proper recycling, contact your local recycling center or the manufacturer.

16.2 Battery Disposal

Batteries in the energy storage system can be hazardous to the environment if not properly disposed of. When the battery life expires, contact your local recycling center or manufacturer for instructions on proper disposal.

17 MAINTENANCE AND CLEANING

17.1 Regular Maintenance

To ensure your NGEN Star system operates smoothly, regularly check the condition of the system, including solar panels, inverters, and energy storage. Follow the maintenance instructions described in the manual.

17.2 Cleaning the Solar Panels

Solar panels need to be cleaned regularly to maintain high efficiency. Check the panels at least once every quarter and clean them with clean water and a soft cloth as needed. Do not use aggressive cleaners or hard brushes that can damage the panels.

17.3 Checking and Replacing Batteries

Energy storage batteries wear out over time and may need to be replaced. Check battery performance regularly and contact the manufacturer or authorized service provider if replacement is needed.

18 ADDITIONAL INFORMATION AND RESOURCES

For additional information on the use, maintenance, and improvements of the NGEN Star system, please contact the manufacturer or visit their website. You can also research independent sources and forums where you can exchange experiences and tips with other NGEN Star users.

19 FIRE SAFETY

19.1 Fire Prevention

When installing and using the NGEN Star hybrid system, it is important to consider fire safety. The system and its components are designed to reduce the risk of fire, but it is still important to follow these guidelines:

- Installation: Make sure that all system components, including solar panels, inverters, and energy storage systems, are installed according to the manufacturer's instructions and local regulations.
- Regular maintenance: Regularly check the system and its components for signs of overheating, damage, or leakage.
- Proper spacing: Ensure proper spacing between system components and other devices to prevent overheating.
- Prevent system overload: Follow the system's capacity and limitations to prevent overloading the components.
- Use safety features: Use safety switches, such as the "Safety switch", when necessary to prevent potential hazards associated with electrical energy.

19.2 Action in Case of Fire

If you notice smoke, sparks, fire, or other signs of fire, immediately take the following measures:

- Press the safety switch: If possible, press the "Safety switch" on the "Smart box" unit to switch off the power to the system and prevent the further spread of the fire.
- Use a fire extinguisher: Use a fire extinguisher suitable for electrical fires (e.g. CO2 extinguisher) to try to extinguish the fire.
- Evacuate: If you cannot extinguish the fire, evacuate to a safe distance and notify others in the vicinity of the danger.
- Call for help: Call the fire department and inform them of the situation. Specify that it is an electrical fire associated with a solar power plant and energy storage system.
- Contact the manufacturer: After the fire, contact NGEN or an authorized service provider to assess the condition of the system, identify possible causes, and perform necessary repairs or replacements.

20 WARRANTY AND SUPPORT

The NGEN Star system comes with a limited warranty that covers any defects in material or workmanship. For more information on the warranty, product registration, and technical support, please contact the manufacturer or visit the website.

20.1 Contacting the Manufacturer (NGEN)

For additional information on the NGEN Star and other NGEN products, please visit the manufacturer's website: <https://www.mojabaterija.si>.

Technical support:

- For technical support or any questions regarding the NGEN Star, please contact NGEN technical support using the application NGEN Energy.



- Email: support@ngen.si

Complaints and warranty:

- For information on warranty, complaints, or product replacement, please contact NGEN technical support using the application NGEN Energy.
- Email: support@ngen.si